

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A scanning method for operating a scanning apparatus for optical density measurement and/or color or spectral measurement of at least one measurement object arranged on a printing medium, the at least one measurement object comprising measurement strips and the printing medium comprising a printing or paper web, the method comprising the steps of:

detecting, during a printing process, a position of a reference object on the printing medium, the reference object being arranged ahead of the at least one measurement object relative to a travel direction of the printing medium; and

scanning, during the printing process, the at least one measurement object with at least one sensor based on the detection of the reference object in said step of detecting and a relative position of the measurement object with respect to the detected position of the reference object, said at least one sensor detecting information from the at least one measurement object indicating at least one of optical density and color or spectral values of the at least one measurement object.

wherein said step of scanning including moving the at least one sensor in a translational movement transverse to a travel direction of the printing medium to scan the at least one measurement object, the movement of the at least one sensor means being activated responsive to a detection of the reference object.

2. (canceled)

3. (currently amended) The scanning method according to claim 2 3, wherein the printing medium is carried on a roll, said method further comprising the step of measuring and storing, at an instant of detection of the reference object, a corresponding angle φ of rotation of the roll.

4. (currently amended) The scanning method according to claim 3, further comprising the step of calculating an angle-of-rotation increment based on a diameter of said the roll, the measured angle φ of rotation and a predetermined distance running in a printing medium transport direction between the reference object and the measurement object, said step of scanning being performed when said the roll has rotated said the angle increment.

5. (previously presented) The scanning method according to claim 1, wherein said step of scanning is activated with a time delay relative to an instant of detection of the reference object, said step of scanning being triggered in accordance with a currently determined printing medium speed and a predetermined distance running in a printing medium transport direction between the reference object and the measurement object.

6. (previously presented) A scanning apparatus for optical density measurement and/or color or spectral measurement of at least one measurement object arranged on a printing medium, comprising:

a sensor device including a plurality of measurement heads arranged in a printing machine, said printing medium having a reference object arranged thereon at a predetermined distance running in a printing medium transport direction ahead of said at least one measurement object, wherein said at least one measurement object is a longitudinal measurement strip disposed along a coordinate direction approximately transversely of the printing medium transport direction, at least one of said measurement heads being operative to detect said reference object during a printing process, remainder ones of said measurement heads being activatable to detect and scan said at least one measurement object during the printing process, said remainder ones of measurement heads being activated responsive to said reference object detection and being arranged and dimensioned for detecting information from the at least one measurement object indicating at least one of optical density and color or spectral values of said at least one measurement object.

7. (canceled)

8. (currently amended) The scanning apparatus according to claim 6, wherein the said measurement strip includes a linearly arranged chain of measurement fields thereon, said measurement fields having specific color density values.

9. (currently amended) The scanning apparatus according to claim 8, wherein for detection and scanning purpose, each measurement head of said plurality of measurement heads is associated with at least one measurement section, which said at least one measurement section includes at least one of said measurement fields.

10. (currently amended) The scanning apparatus according to claim 9, wherein each said at least one measurement section comprises two adjacent spaced apart measurement zones intervened by a narrow track.

11. (currently amended) The scanning apparatus according to claim 10, wherein the said measurement zones each have identically recurring sequences of color density values.

12. (currently amended) The scanning apparatus according to claim 10, wherein each of said measurement zone zones has measurements fields of a same longitudinal dimension.

13. (currently amended) The scanning apparatus according to claim 11, wherein each of said measurement zone zones has measurement fields of a same longitudinal dimension.

14. (currently amended) The scanning apparatus according to claim 13, wherein each of said measurement zone zones includes a common number of measurement fields.

15. (currently amended) The scanning apparatus according to claim 10, wherein each of said measurement zone zones has at least one minimum and one maximum color density value.

16. (currently amended) The scanning apparatus according to claim 10, wherein the said reference object comprises at least one of said measurement fields.

17. (currently amended) The scanning apparatus according to claim 6, wherein said measurement heads are arranged one after another along said coordinate direction, the said measurement heads being moveable along said coordinate direction.

18. (currently amended) The scanning apparatus according to claim 17, wherein the said apparatus is disposed above a printing machine roll, the said printing medium being carried on said roll.

19. (original) The scanning apparatus according to claim 17, further comprising a slide device, said measurement heads being carried on said slide device, said slide device being moveable translationally along said coordinate direction.

20. (original) The scanning apparatus according to claim 18, further comprising a slide device, said measurement heads being carried on said slide device, said slide device being moveable translationally along said coordinate direction.

21. (original) The scanning apparatus according to claim 19, wherein in progressive time with slide device translational movement, each measurement head scans a measurement section on said measurement strip associated with said each measurement head.

22. (currently amended) The scanning apparatus according to claim 6, wherein the printing medium is carried on a printing roll, said apparatus further comprising an angle measurement transmitter carried on said printing roll for detecting an angle of rotation of said printing roll, said transmitter being electrically operatively connected to ~~the~~ said apparatus.

23. (currently amended) The scanning apparatus according to claim 22, further comprising a control electronics unit, said control electronics unit being operative to detect a current angle of rotation of said printing roll at detection of said reference object and trigger activation of apparatus scanning when a predicted angle-of-rotation increment relative to ~~that~~ said angle of rotation at said detection is reached.

24. (currently amended) The scanning apparatus according to claim 22, further comprising a control electronics unit, said control electronics unit triggering activation of said scanning apparatus with a predicted time-delay signal, the time delay for said time-delay signal being functionally dependent on a predetermined distance between the reference object and the measurement object.

25. (new) A scanning method for operating a scanning apparatus for optical density measurement and/or color or spectral measurement of at least one measurement object

arranged on a printing medium, the at least one measurement object comprising measurement strips and the printing medium comprising a printing or paper web, the method comprising the steps of:

detecting, during a printing process, a position of a reference object on the printing medium, the reference object being arranged ahead of the at least one measurement object relative to a travel direction of the printing medium; and

scanning, during the printing process, the at least one measurement object with at least one sensor in response to the detection of the reference object in said step of detecting, said step of scanning being performed at a predetermined position of the measurement object with respect to the detected position of the reference object, said at least one sensor detecting information from the at least one measurement object indicating at least one of optical density and color or spectral values of the at least one measurement object.

26. (new) The scanning method of claim 25, wherein said step of scanning comprising moving the at least one sensor along a coordinate direction approximately transversely of a transport direction of the printing medium.

27. (new) The scanning method of claim 25, wherein said step of scanning is triggered by a control electronics unit with a predetermined time-delay signal in response to the detection of the reference object in said step of detecting, the time delay of the time-delay signal being functionally dependent on a predetermined distance between the reference object and the measurement object.

28. (new) The scanning method of claim 27, wherein the printing medium is carried on a printing roll, said method further comprising detecting an angle of rotation of the printing roll, wherein the predetermined time delay is dependent on a predetermined angle of rotation.